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March 30, 2012

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Written *Ex Parte* Presentation
WT Docket No. 07-293; IB Docket No. 95-91

Dear Ms. Dortch:

Sirius XM Radio Inc. (“Sirius XM”) hereby responds to the WCS Coalition’s March 19, 2012, letter and related comments of WCS Coalition representatives at the Commission’s recent workshop on spectrum efficiency and receivers.¹ Sirius XM’s satellite radio receivers provide state of the art performance in blocking adjacent band signals and, in this area, even outperform the current standards for mobile broadband devices. There is no basis for any claim that those receivers somehow provide insufficient immunity to interference from signals generated on WCS frequencies.

Having never themselves deployed commercial service on their spectrum 15 years after being awarded their licenses,² WCS licensees nonetheless argue that Sirius XM “must be held responsible” for deploying receivers “incapable of withstanding reasonably predictable interference from neighboring services.”³ The WCS licensees distort the regulatory history of their service in an effort to show that Sirius XM should have designed receivers with the expectation that WCS spectrum would one day be used to support high density mobile networks.

Sirius XM has developed and deployed consumer satellite radios with exceptional interference blocking capabilities. Sirius XM’s efforts have resulted in the development of a successful new consumer service, in an extremely challenging economy and radio environment, exacerbated by the uncertainty of investing billions of dollars to build and

¹ See Letter from Paul J. Sinderbrand, Counsel to the WCS Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 07-293 (filed Mar. 19, 2012) (“WCS Coalition Letter”). See also Office of Engineering and Technology, Wireless Telecommunications Bureau, and Office of Strategic Planning Announce Workshop on “Spectrum Efficiency and Receiver Performance,” *Public Notice*, DA 12-378 (rel. Mar. 9, 2012).

² The WCS licensees have asked for an additional 3-4 years to satisfy their buildout obligations which, if granted, would mean the spectrum has remained essentially fallow for approximately 20 years after its initial licensing. See Petition for Partial Reconsideration of AT&T Inc., WT Docket No. 07-293, IB Docket No. 95-91, GEN Docket No. 90-357, RM-8610 (filed Sept. 1, 2010).

³ WCS Coalition Letter at 1, 2.

launch satellites, construct a corporate infrastructure, and design and market receivers, while accommodating adjacent band licensees who will not commit to a technology or develop their spectrum.

Sirius XM's satellite signal strength is very low, with the average level in the continental United States ("CONUS") being approximately -100 dBm and even lower in many areas of the country.⁴ The satellite signal is all that Sirius XM subscribers have available in the overwhelming majority of locations, since the Sirius XM terrestrial repeater network provides coverage to less than 1 percent of CONUS.⁵

Sirius XM receivers must turn these extremely low powered satellite signals into a high quality, constantly streaming audio entertainment service provided to subscribers with as few disruptions as possible. This challenge is complicated by the multiple sources of potential interference that exist on adjacent frequencies. As an initial matter, the early generations of Sirius and XM receivers had to be capable of rejecting interference generated by the other satellite radio network, each of which included high-power terrestrial satellite radio repeaters. On top of this, the satellite receivers were designed to protect against interference from terrestrial services provided by WCS licensees.

Sirius XM designed and deployed consumer grade receivers that provide exemplary interference immunity from adjacent band signals. Sirius XM has filed data into the record showing that its satellite radio receivers can withstand undesired signals originating in the adjacent WCS C and D blocks as strong as -55 dBm without muting.⁶ For the WCS A and B blocks, with 5 MHz or more separation from its satellite signals, receivers can withstand undesired signal levels as strong as -44 dBm without muting. In other words, Sirius XM receivers can operate without muting when the undesired WCS signals are 45 db to 56 dB **stronger** than the -100 dBm desired satellite signal.

This level of blocking performance even exceeds current specifications for mobile terrestrial user devices. For example, Release 10 of the UMTS standard for user equipment radio transmission and reception specifies an adjacent channel blocking performance requirement of only 33dB.⁷

⁴ See, e.g., Supplemental Comments of Sirius XM Radio Inc. at 15, WT Docket No. 07-293, IB Docket No. 95-91, GEN Docket No. 90-357, RM No. 8610 (filed Apr. 29, 2010) (discussing received signal strengths in Miami, Florida and Northern Virginia of -102.6 dBm, -107 dBm, and -105 dBm measured over a 1 MHz bandwidth).

⁵ See, e.g., Letter from Robert L. Pettit, Counsel to Sirius XM Radio Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission at 1, IB Docket No. 95-91, WT Docket No. 07-293 (filed Dec. 5, 2008).

⁶ See Comments of Sirius Satellite Radio Inc., WT Docket No. 07-293, IB Docket No. 95-91, GEN Docket No. 90-357, RM No. 8610, Exhibit C (filed Feb. 14, 2008).

⁷ 3GPP, Technical Specification 25.102, "Universal Mobile Telecommunications System (UMTS); User Equipment (UE) Radio Transmission and Reception (TDD)," (3GPP TS 25.102 version 10.3.0 Release 10).

The WCS Coalition would have the Commission believe that WCS licensees are victims “of the poor receiver choices made by the SDARS community,”⁸ but its letter does not detail what those poor choices were, nor does it in any way attempt to describe how Sirius XM receivers could offer better protection from adjacent band WCS signals. Rather, the Coalition implies that had Sirius XM been prescient enough in 1997 to predict that WCS spectrum might someday be suggested as an appropriate band for high density mobile services, it could have designed more robust satellite receivers to operate in this environment.

It is astonishing that WCS licensees are critical of Sirius XM for accomplishing something they themselves declined to do – building networks in accordance with the WCS rules adopted in 1997.⁹ Be that as it may, the salient point is that Sirius XM receivers provide excellent adjacent band blocking performance. The radios must do so because they are required to operate in a noise limited environment with very low level desired signal strengths. It should not be unexpected that satellite radio receivers might have compatibility issues with adjacent band networks that operate in an interference limited environment. This is precisely the interference scenario that led the Commission to reconfigure the 800 MHz band to segregate public safety networks from high density cellular networks.¹⁰ In short, Sirius XM cannot fundamentally alter the design of its receivers to improve adjacent band blocking without affecting their fundamental purpose of receiving low power satellite transmissions, nor has the WCS Coalition provided any information or data to suggest otherwise.

The WCS Coalition attempts to rewrite history by suggesting that the Commission’s intent in 1997 was to foster high density mobile services in the WCS spectrum, relying on aspirational statements of some commenters in the earliest stages of the WCS rulemaking seeking a wide range of uses for this band.¹¹ However, the Coalition fails to contrast those comments with the Commission’s clear and repeated statements at that time emphasizing the significant operational limitations on WCS licenses created by technical rules deemed “necessary to protect prospective satellite DARS licensees from interference from WCS operations.”¹² Indeed, the *WCS Report and Order* and the *WCS Reconsideration Order* cited in the WCS Coalition’s recent letter are rife with the Commission’s unequivocal statements that mobile operations in the WCS spectrum would at least for the foreseeable future, be “technologically infeasible.”¹³ Prospective

⁸ WCS Coalition Letter at n.3.

⁹ Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service, *Report and Order*, 12 FCC Rcd 10785 (1997) (“*WCS Report and Order*”).

¹⁰ See Improving Public Safety Communications in the 800 MHz Band, WT Docket No. 02-55, ET Docket No. 00-258, RM-9498, RM-10024, ET Docket No. 95-18, *Report and Order*, *Fifth Report and Order*, *Fourth Memorandum Opinion and Order*, and *Order*, 19 FCC Rcd 14969 (2004).

¹¹ WCS Coalition Letter at 2.

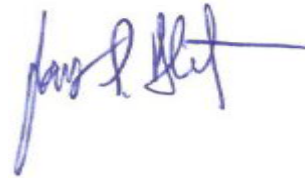
¹² *WCS Report and Order*, 12 FCC Rcd at 10787 ¶ 3 (1997).

¹³ See *id.* at ¶¶ 3 (“we believe that there is a substantial risk that the out-of-band emission limits we are adopting . . . will, at least in the foreseeable future, make mobile operations in the WCS spectrum technologically infeasible”), 25 (“We emphasize that with the current state of technology there is a

WCS licensees were specifically instructed to take these limitations into account when bidding on and developing business plans and use cases for the spectrum.¹⁴ Based on this record, it would have been irrational to expect that anything like the mobile broadband service now contemplated by the WCS licensees might eventually emerge in this band, despite whatever desires some commenters expressed when the Commission initiated its proceeding to establish WCS rules over 15 years ago.

Sirius XM urges the Commission to resolve the pending petitions for reconsideration of its 2010 Report and Order based on technical facts and data submitted into the record. The bombastic rhetoric of the WCS Coalition's latest filing does not qualify under this standard and should be summarily rejected.

Respectfully submitted,



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substantial risk that these rules will severely limit, if not preclude, most mobile and mobile radiolocation uses.”), 34 (“However, we note that, given the out-of-band emission limits we adopt for WCS, technology will likely severely limit, if not preclude, most mobile services on this spectrum, at least in the near term.”), 138 (“In particular, we understand that there is a substantial risk that the out-of-band emission limits we are adopting will, at least in the foreseeable future, make mobile operations in the WCS spectrum technologically infeasible. Nonetheless, we find that this level of attenuation is required in order to adequately protect satellite DARS reception from WCS transmissions.”); Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service, *Memorandum Opinion and Order*, 12 FCC Rcd 3977, 3979 ¶ 5 (1997) (“*WCS Reconsideration Order*”) (“In particular, wide area, full mobility systems and services such as those being provided or anticipated in the cellular and PCS bands are likely to be of questionable feasibility under either the alternative restrictions or the general out-of-band emission limits.”).

¹⁴ *WCS Reconsideration Order*, ¶ 5.